WHAT IS CLAIMED IS:

1. A polynucleotide comprising: (1) an IRES nucleotide sequence, (2) an ORF encoding a peptide of interest, and (3) an ORF encoding a viral protein, where (1) is located between (2) and (3).

2. The polynucleotide according to Claim 1 wherein a promoter 5' to (1), (2) and (3) transcribes a mRNA containing (1), (2) and (3).

3. The polynucleotide according to Claim 2 wherein the IRES nucleotide sequence is a naturally occurring IRES or a fragment of a naturally occurring IRES that can direct translation of (2) or (3).

4. The polynucleotide according to Claim 2 wherein the IRES sequence comprises a nucleotide sequence of: SEQ ID NO: 1; SEQ ID NO: 2; SEQ ID NO: 3; SEQ ID NO: 4; SEQ ID NO: 5; SEQ ID NO: 6; SEQ ID NO: 7; or a fragment of SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 5, or SEQ ID NO: 6, or SEQ ID NO: 7, that can direct translation of (2) or (3).

5. The polynucleotide according to Claim 2 wherein the viral protein is a coat protein.

6. A recombinant viral vector comprising a polynucleotide according to Claim 1.

7. A recombinant virus comprising a recombinant viral vector according to Claim 5.

8. A host comprising a recombinant virus according to Claim 6.

9. An IRES capable of directing the expression of an internal ORF in a heterologous viral vector.

10. An IRES according to Claim 9 wherein the IRES is a IREScp.

11. An IRES according to Claim 10 wherein the IRES is crTMV IREScp.

12. A viral vector construct that expresses a bicistronic mRNA comprising an ORF positioned upstream of an IRES sequence and followed by a coat protein coding sequence.

13. A viral vector construct according to Claim 12 wherein the ORF encodes a native or foreign gene.

14. A viral vector construct according to Claim 13 wherein the reporter gene encodes a green fluorescent protein.

15. A viral vector construct, comprising: (1) a viral genome, and (2) an IRES sequence, wherein the IRES sequence is heterologous to the viral genome, wherein the IRES sequence is downstream of a desired gene or ORF and upstream of a virus coat protein gene, wherein the IRES sequence is in the sense or antisense orientation.

16. A viral vector construct according to Claim 15 wherein the viral vector construct expresses a bicistronic mRNA.

17. A viral vector construct according to Claim 15 wherein the viral genome is the genome of potato virus X.

18. A potato virus X -based viral vector construct comprising the viral vector construct according to Claim 15, wherein the potato virus X -based viral vector construct gives rise to single cell infection sites.

19. A viral vector construct according to Claim 15 further comprising (3) a stable stem loop structure inserted 5' of the IRES sequence.

20. A viral vector construct according to Claim 19 wherein the stem loop structure is immediately upstream of the IRES sequence.

21. A viral vector construct according to Claim 20 wherein the stem loop structure causes a reduction in the expression of the virus coat protein gene.

22. A viral vector construct according to Claim 21 wherein the stem loop structure interferes with direct interaction of a ribosome at the IRES sequence.

23. A viral vector construct according to Claim 15 further comprising (3) a stable stem loop structure inserted 3' of the IRES sequence.

24. A viral vector construct according to Claim 23 wherein the stem loop structure prevents expression of the virus coat protein gene.

25. A viral vector construct according to Claim 23 wherein the stem loop structure effectively blocks scanning ribosomes.

26. A viral vector comprising a plant virus-derived IRES sequence linked to the ORF encoding a protein of interest, wherein the plant virus-derived IRES sequence directs translation of the ORF and wherein the protein of interest is heterologous to the viral vector.

27. A viral vector according to Claim 26 wherein the plant virus-derived IRES sequence initiates translation effectively in either sense or antisense orientation.

28. A viral vector according to Claim 27 wherein the plant virus-derived IRES sequence is an IREScp sequence.

29. A viral vector construct comprising the function of producing a bicistronic subgenomic RNA in which two ORFs are separated by an IRES.

30. A viral vector construct comprising a modified IRES sequence that directs higher levels of protein expression.

31. A nucleic acid construct comprising a bicistronic message with an intervening IRES sequence.

32. A transgenic virus comprising the nucleic acid construct according to Claim 31.

33. A transgenic virus comprising a foreign IRES.

34. A method of regulating the rate at which a virus infection spreads in a host, comprising: placing a nucleic acid construct comprising an internal ribosomes entry site upstream of a coat protein gene, wherein the internal ribosome entry site is chosen by the rate of infection of the viral vector on a host in the presence of that IRES.

35. A method of directing the expression of a foreign nucleic acid sequence in a host in the absence of multiple subgenomic promoters in a virus, comprising: placing a nucleic acid construct comprising an internal ribosomes entry site upstream of a foreign gene.

36. A method of directing the expression of a foreign ORF in a host, comprising:

(a) inserting a nucleic acid construct comprising a bicistronic message with an intervening IRES into a virus;

(b) infecting a host with the virus; and

(c) growing the host;

whereby the foreign ORF is expressed.

37. A potato virus X-based viral vector construct having the designation TXS.GFPΔCP.

38. A polynucleotide comprising pIRESs-XCP.

39. A polynucleotide comprising pIRES-XCP.

40. A polynucleotide comprising pSERI-XCP.

41. A polynucleotide comprising pHIRES-XCP.

42. A polynucleotide comprising pTXS.GFP.IRES-CP.

43. A polynucleotide comprising pTXS.GFP.IRESs-CP.

44. A polynucleotide comprising pTXS.GFP.SERI-CP.

45. A polynucleotide comprising pTXS.GFP.HIRES-CP.

46. A polynucleotide comprising pTXS.GFP.IRESH-CP.

47. A polynucleotide comprising pTXS.GFP-IRESs(mp)-CP.

48. A viral vector construct comprising TXS.GPF-IRES-CP.

49. A viral vector construct comprising TXS.GPF-IRESs-CP.

50. A viral vector construct comprising TXS.GPF-HIRES-CP.

51. A viral vector construct comprising TXS.GPF-IRESH-CP.

52. A viral vector construct comprising TXS.GPF-SERI-CP.